The Physical Educator Vol. 82 • pp. 249–267 • 2025
https://doi.org/10.18666/TPE-2025-V82-I3-12348

PETE

Mental Toughness of Physical Education Teachers: Validation of a New Questionnaire

Sima Zach, Noa Fishler Barhum, and Itamar Shidlov

Abstract

The purpose of the study was to develop the Teachers' Mental Toughness Questionnaire (TMTQ). The questionnaire was developed in six stages: item generation, content validity, exploratory factor analysis, reliability tests, convergent validity tests, and discriminant validity. The factor analysis indicates that it measures six factors: team, liveliness, adaptation, stress, burnout, and facing challenges and assertiveness. Reliability demonstrated acceptable to good levels of internal consistency and stability over time. Convergent validity and discriminant validity were also demonstrated. Hence, the questionnaire was found to be a psychometrically sound six-factor measure of mental toughness among teachers.

Sima Zach, Professor, Levinsky-Wingate Academic College; Noa Fishler Barhum, M.PE, Physical education teacher, Middle School Rogozin A, Kiriat Ata; and Itamar Shidlov, PhD, Givat Washington Academic College. Please send author correspondence to simaz@l-w.ac.il

Introduction

Over the past three decades, considerable research has been devoted to creating evidence-based knowledge regarding the empowerment of students, both as individuals and as team members (Darling-Hammond, 2000; de Boer et al., 2018). A variety of educational theories, approaches, teaching and learning styles, curricula, and programs have been developed to increase student motivation, abilities, competencies, and achievements. On the other hand, teachers—those who must convey and deliver material and lessons in an optimal manner for the benefit of their students—have received much less attention. Indeed, a recent review indicates that teachers experience high levels of stress in their profession and that there is a need for theoretical and empirical research on this topic, especially as an ongoing stressful work environment has a major impact on burnout and attrition (Hagermoser et al., 2021).

Teacher attrition is a global social phenomenon (Heikkinen et al., 2012). After reviewing 34 articles on teacher attrition, Borman and Maritza-Dowling (2008) claim that newly qualified teachers tend to leave the profession within their first five years of teaching, and some veteran teachers over the age of 50 choose to retire early. In the United States, teacher attrition five years after graduation from teacher education may be as high as 30%, and even reaching 50% in high-poverty areas (Hong, 2010; Ingersoll, 2001). Recently, Goldhaber and Theobald (2021) utilized 35 years of data on public school teachers in Washington, USA. They reported that annual rates of teacher attrition from the workforce have been 5%-8% for each of the past 35 years, and there is a strong negative relationship between unemployment rates and these rates of attrition. They claimed that teacher attrition is likely to increase moderately as the economy recovers after the COVID-19 pandemic. In the United Kingdom, reports indicate that 50% of teachers leave the teaching profession within five years of graduating from their teacher education program (Espinoza, 2015). In Australia and other economically developed countries, the dropout rate among teachers within their first five years of teaching is approximately 50% (Arnup & Bowles, 2016).

In Israel, approximately 7,000 teachers leave the teaching profession each year, with about 20% of teachers leaving within three years

(Central Bureau of Statistics, 2017). This is a global phenomenon, even though initially, most people choose to embark on the teaching profession for idealistic reasons, such as a sense of mission and a desire to impact future generations (Makela et al., 2015).

Several reviews and meta-analytic studies (Nguyen et al., 2019; Schaefer et al., 2012) have categorized the attrition-retention phenomenon among teachers, depicting a phenomenon with multifaceted dimensions. In turn, these dimensions should be addressed when initiating steps to adjust teacher education programs and the accompanying mentoring of novice teachers as a means of decreasing teacher attrition.

As such, understanding and identifying causes and factors that lead to teacher attrition could help increase professional retention while decreasing this undesirable and costly phenomenon. As such, some studies aim to investigate the reasons for leaving the profession (Madigan & Kim, 2021), while others seek to predict teaching perseverance (Renbarger & Davis, 2019). According to the self-determination theory, satisfying people's own needs for a sense of autonomy, belonging, and competence enhances their motivation and the chances of their persisting with this behavior (Ryan & Deci, 2000).

Indeed, studies on the causes of dropout among teachers indicate that the lack of a sense of belonging (Kelchtermans, 2017) and support from colleagues in the workplace, as well as inadequate socialization (Patrick et al., 2010), and an insufficiently attentive work environment are among the significant causes for leaving the teaching profession. In addition, external pressures, such as coping with student behaviors, dealing with time difficulties, and lack of support from the school staff, were found to be associated with lower job satisfaction, which in turn may increase attrition (Arnup & Bowles, 2016). Moreover, a sense of inadequate teaching skills and lack of competence for dealing with the variety of difficulties that arise in teaching work, (Kirkpatrick & Johnson, 2014), as well as low levels of teaching efficacy (Barnes et al., 2018; Skaalvik & Skaalvik, 2017) have also been mentioned as causes for dropping out of the teaching profession.

In contrast, positive aspects regarding the teaching experience that might be related to teacher retention include satisfaction, com-

mitment to teaching, managerial capabilities, and quality of work—all of which are essential to teachers' wellbeing and are positive correlates and predictors of persistence in the teaching profession (Arnup & Bowles, 2016; Granziera & Perera, 2019; Makela et al., 2015). In addition, professional autonomy and positive interactions with students and peers, experiencing success in the professional field, improving students' achievement, and working in a positive school climate (Addimando, 2019) all add to the retention of teachers in the profession over time.

Several attempts have been made to correlate teaching efficacy and persistence/attrition (Tschannen-Moran & Woolfolk Hoy, 2001; Woods & Weasmer, 2004; Zach et al., 2012). Teaching efficacy relates to the teacher's belief in their ability to affect their students' learning significantly and their set of expectations about the effect of their teaching on their students' performance (Ashton & Webb, 1982; Fullan & Hargreaves, 1996). Moreover, examination of several teaching efficacy scales indicates that these mainly include sub-scales and sub-factors such as classroom management, instructional practices, student engagement (Fives & Buehl 2009), teaching skills, managerial skills, planning skills, content knowledge, and pedagogical knowledge (eZach et al., 2012)—most of which are oriented towards the students and the class.

In this study, however, based on a range of reviews (Nguyen et al., 2019; Schaefer et al., 2012), we claim that teachers' *mental toughness* is a more holistic construct. In addition to teacher-student channels, this construct encompasses social, emotional, cognitive, moral, and physical aspects that comprise both internal and external components of behavior, both as an individual within and outside the school and as part of the school organization. In other words, mental toughness may reflect teachers' resilience and, in turn, may serve as a better predictor of teacher retention over time. Mental toughness as a psychological construct has been researched extensively and in a range of contexts that require the ability to cope with challenges, difficulties, and stress in frameworks such as the military (Fitzwater et al., 2018), the workplace, (Lin et al., 2017), and education (McGeown et al., 2017), as well as in life events and everyday stressors (Mutz et al., 2017). Yet, researchers have mainly focused

on measuring general mental toughness rather than domain-specific mental toughness, such as that in the teaching profession.

To narrow this gap in the research literature, we developed an instrument for measuring domain-specific mental toughness that can be used in the teaching profession. The tool examines specific aspects related to a teacher's work from a broader, more holistic perspective. After validating the tool, it was applied to examine differences between physical education (PE) teachers based on their gender, the age of students, and teaching experience. This instrument could assist school principals when recruiting novice teachers, enabling them to provide the latter with appropriate mentoring and guidance—as well as during the teacher training phase, where training can be refined and adjusted to suit the needs of the beginning teacher, enhance their mental toughness, and increase teacher retention.

Methods

Participants

The sample size was calculated using the G*POWER software (Faul et al., 2007) with α=0.05, 1-β=0.9, and an effect size of 0.3. Subject to these conditions, the required sample size was a total of 192 subjects. To include a representative sample of male and female, novice and experienced, and elementary school and high school teachers, at least 32 participants were needed for each of these six sub-groups. A minimum of 192 subjects in total were therefore required, yet we were able to include more than double that number of PE teachers, thereby providing a more representative sample.

The study sample was comprised of 504 participants (282 females and 222 males), including 152 beginner teachers (one to five years' experience) and 352 experienced ones (six-plus years' experience), 232 elementary school teachers (grades 1-6) and 237 high school teachers (grades 7-12), from both state and state religious schools, and from six different districts across Israel.

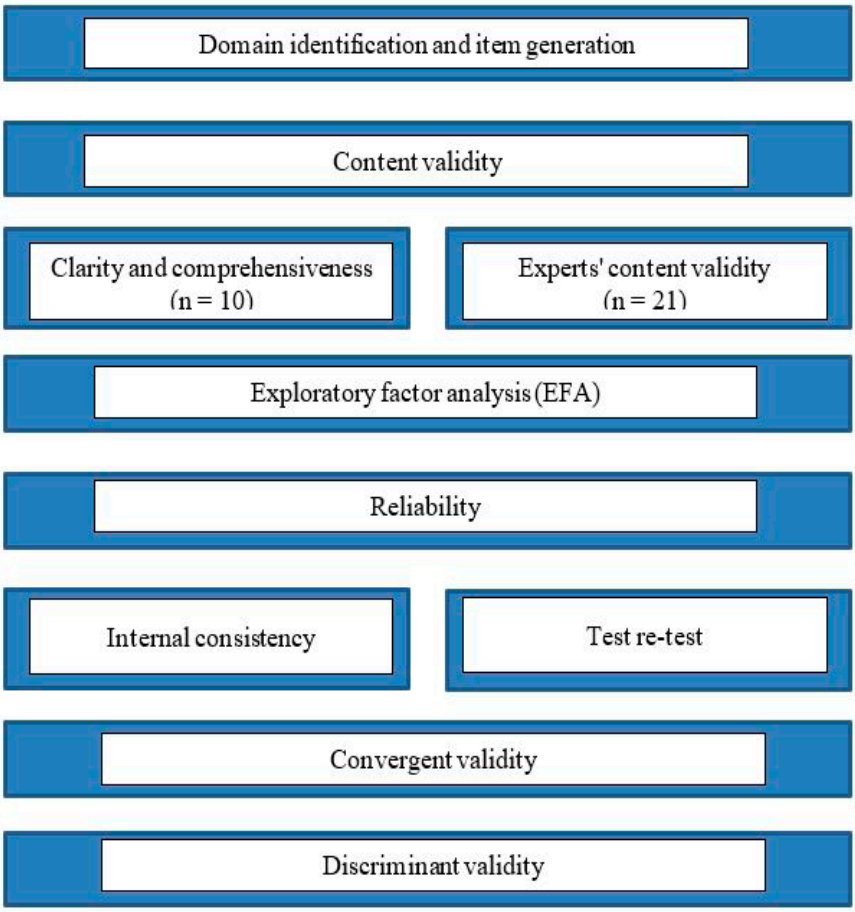
Questionnaire Creation and Validation

The Teachers' Mental Toughness Questionnaire (TMTQ) was constructed in six stages (see Figure 1), in line with Boateng et al. (2018): (I) *Domain identification and item generation*; (II) *content*

validity; (III) *exploratory factor analysis* (EFA), including survey administration and factor extraction; (IV) *reliability tests*, in terms of both internal consistency of questionnaire factors and test-retest reliability conducted two weeks apart (n=24); (V) *convergent validity tests*, for ensuring validity using the multi-trait-multi-method approach, and examining correlations between factors in the proposed questionnaire and in the existing Self-Efficacy Questionnaire for PE Teaching (Zach et al., 2012); and (VI) *discriminant validity*, for examining the differences between novice teachers and experienced teachers. Stages I-II are presented in the Methods section, while Stages III-IV are presented in the Results chapter.

Figure 1

Stages of the TMTQ Creation and Validation



Stage I: Domain Identification and Item Generation

The questions and items included in the survey were written by the authors of this study, including two pedagogical instructors with more than 30 years of experience in teacher education and PE, and one novice PE teacher. After writing 46 items for the questionnaire based on Lahad et al.'s (2000) model, the pool of items was finally narrowed down to 23 items after deleting 23 other statements that had similar meanings or wording.

Stage II: Content Validity

This stage included two steps: (a) *clarity and comprehensiveness* pre-tests (*n = 10), to verify that the questionnaire indeed addresses* all necessary aspects of the mental toughness of PE teachers through clear and coherent wording. (2) *content validity by experts*, where external professionals were asked to examine and comment on the questionnaire, including question wording, interpretation, and relevance to the various topics (i.e., content categories). These professionals included 10 pedagogical instructors with more than 10 years' experience in PE teacher education, three junior high school principals, and eight PE teachers (three from elementary schools and five from junior high and high schools).

Questionnaire Description

The questionnaire was written in Hebrew. After answering background and demographic questions, the participants were asked to rate the 23 statements on the questionnaire on a Likert-type scale from 1 (not at all) to 10 (to a very large extent) (See Appendix). The questionnaire scores, therefore, ranged from 23 to 230. Items included statements such as, "I am able to cope with changes throughout the teaching process," "I am happy to be assisted by the school staff," and "I believe in my teaching abilities."

Procedure

After receiving permission to conduct the study from the Institutional Review Board at the Academic College at Wingate (November 25, 2019), questionnaires were sent to approximately 1,200 PE teachers via social media, such as teachers' groups on Facebook and WhatsApp, and via lists of college graduates. The re-

sponse rate was approximately 42%. Informed consent was obtained from all participants for the study.

Results

After creating the initial questionnaire, the following four additional stages were conducted.

Stage III: EFA

A principal components analysis, followed by a Varimax rotation with Kaiser Normalization, was applied to the TMTQ to determine the optimal solution. The results of this analysis are presented in Table 1.

Table 1
EFA (n=504)

Item No.	Item	1	2	3	4	5
10	I feel comfortable consulting with the school staff	**0.794**				
11	I feel empowered by the professional teamwork	**0.779**				
7	I feel strength from the positive atmosphere in the teachers' team	**0.727**				
13	I feel self-confident as a result of my good relationship with the school principal	**0.701**				
23	I enjoy going to school	**0.550**				
9	I am meaningful to the students	**0.486**				
6	I find teaching to be fresh and invigorating	**0.475**				
15	I aspire to develop myself professionally through school roles	**0.422**				
20	I have adapted myself to the reality of the school		**0.702**			
17	I quickly revert to routine after a crisis situation		**0.696**			
19	I believe in my teaching abilities		**0.678**			
18	I maintain self-control in difficult moments when teaching		**0.669**			
22	I efficient organize my workload (e.g., conduct exams, submit grades, and arrive to class in a timely manner)		**0.656**			
21	I exhibit flexibility for adapting to changes in the teaching process		**0.629**			
16	I separate between my professional life and my private one		**0.615**			
4	I feel stress/insecurity when my students' achievements are low			**0.859**		
3	I lack confidence when participating in parent-teacher meetings			**0.844**		
8	I lack confidence/feel stress when dealing with disciplinary issues			**0.798**		
5	I experience physiological changes in light of classroom situations (e.g., high blood pressure, increased heart rate, and dizziness)			**0.770**		
14	I cannot wait for the next school vacation				**0.748**	
12	I experience tiredness from dealing with students				**0.680**	
2	Criticism					**0.815**
1	I encounter educational dilemmas (such as students' contesting their grades, social issues, violence, and students' unresponsiveness)					**0.813**

(1) **team** [items 7, 11, 10, 13]; (2) **liveliness** [items 6, 9, 15, 23]; (3) **adaptation** [items 16, 17, 18, 19, 20, 21, 22]; (4) **stress** [items 3, 4, 5, 8]; (5) **burnout** [items 12, 14]; and (6) **facing challenges and assertiveness** [items 1, 2].

Following the EFA, we conducted inter-scale correlations (see Table 2). All items that were worded in a negative manner (such as, "I lack confidence when participating in parent-teacher meetings") were flipped for statistical analysis (so that 1=5, 2=4, etc.). Six aspects were achieved in relation to mental toughness in the domain of PE teaching: Team, liveliness, adaptation, stress, burnout, and facing challenges and assertiveness. The findings presented a significant relationship between all six TMTQ factors, except for the relationship between stress and liveliness ($r = 0.073$). The highest correlation was observed between team and liveliness ($r = 0.773$). All factors were highly correlated with the general mental toughness score ($r > .50$).

Table 2

Inter-Scale Correlations Between the Questionnaire Factors

	Team	Adaptation	Liveliness	CCA*	Stress	Burnout	GMT*
Team	–	.434**	.773**	.346**	.098*	.220**	.697**
Adaptation	.434**	–	.517**	.428**	.201**	.186**	.720**
Liveliness	.773**	.517**	–	.351**	0.073	.287**	.699**
CCA*	.346**	.428**	.351**	–	.127**	.089*	.523**
Stress	.098*	.201**	0.073	.127**	–	.516**	.608**
Burnout	.220**	.186**	.287**	.089*	.516**	–	.592**
GMT*	.697**	.720**	.699**	.523**	.608**	.592**	–

CCA* = Facing challenges and assertiveness; GMT* = General mental toughness

We then examined a range of aspects, including item value loading, cross-loading, inter-scale correlations, and other conceptual considerations (e.g., splitting the first factor into two, whereby items 7, 10, 11, and 13 were labeled as "team", while items 6, 9, 15, and 23 were labeled as "liveliness").

The six factors with eigenvalues greater than 1 explained 65.30% of the total variance. Factors were labeled according to the behaviors they represented. The six mental toughness factors that emerged include: (1) *team*—feelings of relatedness and belonging to the school staff in general (including the managerial team) and to the PE teachers' team in particular (items 7, 11, 10, and 13); (2) *liveliness/vividness/vigor*—feelings of enthusiasm, a desire to grow in the school among peers and with the students (items 6, 9, 15, and 23); (3) *adaptation*—socialization and acculturation into school life (items 16, 17, 18, 19, 20, 21, and 22); (4) *stress*—experiencing stressful situations (items 3, 4, 5, and 8); (5) *burnout*—exhaustion from teaching (items 12 and 14); and (6) *facing challenges and assertiveness*—the teachers' cognitive coping skills (items 1 and 2). This sixth factor differs from the others on the TMTQ, as the items are presented after the following introduction: "As a teacher, I am able to cope with…," whereas the first five factors start with either: "As a teacher I feel…," or "How well do the following items describe you?"

Stage IV: Reliability Tests

Internal Consistency of Mental Toughness Factors

In terms of Cronbach's α for internal consistency of the TMTQ, the factors ranged from .65 to .86, which is considered acceptable to good (George & Mallery, 2003). The reliability of three of the six factors was higher than 0.80 (team, adaptation, and stress), and the reliability of two additional factors (Burnout and facing with challenges and assertiveness) was higher than 0.70. Finally, one factor (liveliness) presented a reliability of 0.65. If item 16 ("I separate between my professional life and my private one" is deleted from this factor, then the reliability increases to higher than 0.69. Nevertheless, we decided not to delete this item from the TMTQ, since it may be a strong predictor of teacher attrition (Opletka, 2015). In addition, according to DeVellis (1991), researchers who create a new scale have the discretion to decide whether to retain items, despite their moderate or borderline reliability.

Stability of the Questionnaire (Test-Retest Reliability)

Test-retest reliability was calculated using a *t*-test. The questionnaire was completed twice, two weeks apart, by 24 PE teachers, as

shown in Table 3, which presents the descriptive statistics, correlations between test and re-test scores, significance levels, and the *t*-test scores for the mental toughness factors.

Table 3
Means (Standard Deviations), Correlations, t-scores, and Significance for the Mental Toughness Factors (n = 24)

Factors	Descriptive statistics				
	M (*SD*) Test	*M* (*SD*) Re-test	correlation	*t*- scores	Sig. (*p*)
Team	7.08(1.86)	6.76(1.75)	0.71	1.083	0.291
Adaptation	8.17(1.3)	8.26(1.23)	0.48	-0.330	0.745
Stress	3.69(1.63)	3.98(1.65)	0.70	-1.045	0.308
Burnout	5.9(1.53)	6.2(1.99)	0.76	-1.068	0.297
CCA*	7.54(1.38)	8.23(1.16)	0.73	-3.338	0.003
Liveliness	7.2(1.31)	7.23(1.41)	0.73	-0.107	0.916

* Coping with challenges and assertiveness

A correlation was seen between the mental toughness factors in the first and second measurements. In addition, all mental toughness factors were high except for *stress* (3.69). Correlations between the measurements were also high, except for *adaptation* (0.48). In addition, no significant differences were observed between the test and re-test scores ($p > 0.05$), except for liveliness ($p = 0.003$). In other words, differences were seen between the first and second measurements.

Stage V: Convergent Validity Tests

Correlations were performed between the existing Self-Efficacy Questionnaire for PE Teaching and our novel TMTQ using the

multi-trait-multi-methods approach (Campbell, & Fiske, 1959). As seen in Table 4, correlations between the two scales were weak but significant, thereby indicating a low-to-moderate relationship and justifying the new questionnaire as a scale that examines the unique construct of mental toughness in teaching.

Table 4

Correlations Between Factors in the Self-Efficacy in Teaching PE Questionnaire and the TMTQ

1 = Team; 2 = Liveliness; 3 = Adaptation; 4 = Stress; 5 = Burnout; 6 = Facing challenges and assertiveness

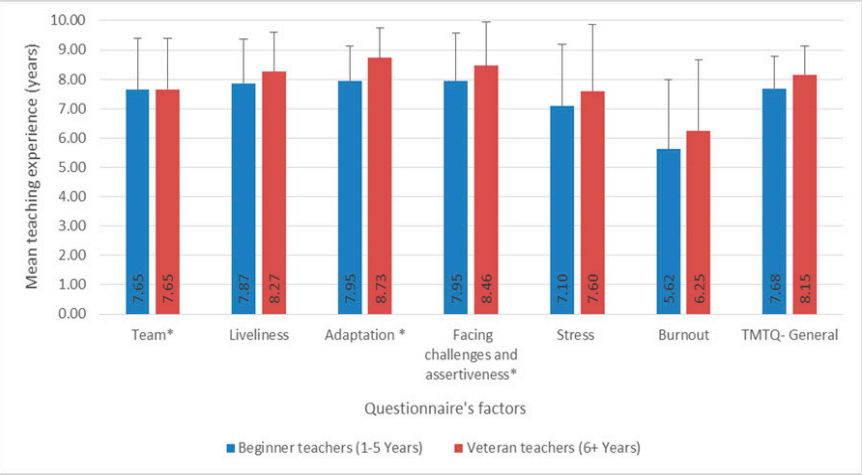
	1	2	3	4	5	6
Effective lesson management (ELM)	.360**	.472**	-.217**	.377**	-.226**	.376**
Planning, teaching and evaluation methods (PTE)	.387**	.462**	-.246**	.460**	-.263**	.406**
Pedagogical knowledge and didactical adjustments (PK & DA)	.368**	.491**	-.284**	.354**	-.213**	.389**
General physical education	.423**	.531**	-.243**	.482**	-.269**	.450**
General efficacy	.406**	.515**	-.262**	.442**	-.260**	.426**
Challenging learning encourages motivation	.407**	.492**	-.222**	.472**	-.255**	.422**
Effective teaching	.396**	.524**	-.233**	.440**	-.255**	.440**

Stage VI: Discriminant Validity

When comparing beginning teachers (one to five years of teaching) and experienced teachers (at least six years of teaching), significant differences were found, as seen in Figure 2.

In summary, experienced teachers reported higher mental toughness compared to beginning teachers. The findings also showed that regarding the four positively oriented factors (i.e., team, liveliness, adaptation, and facing challenges and assertiveness), experienced teachers presented higher mental toughness compared to beginning teachers. On the other hand, regarding the two negatively oriented factors (i.e., stress and burnout), higher mental toughness was observed among beginning teachers.

Figure 2
Differences in MT factors by Teaching Frameworks (n = 504)



Discussion

Considering the extensive literature on high rates of attrition among beginner teachers, who often encounter difficulties and experience stress, helplessness, loneliness, and frustration (Arnup & Bowles, 2016), our purpose was to develop and validate an instrument that measures the mental toughness of physical education beginner teachers. Since mental toughness can be developed through appropriate training and in a supportive environment (Biswas-Diener et al., 2011), we believe that this instrument can help identify difficulties in a timely manner, allowing for relevant guidance and support to be offered. Moreover, the sub-themes of the instrument can be elaborated and integrated into teacher training programs to better prepare teachers for preventing such difficulties and for addressing their future professional realities.

The tool was developed based on indications whereby teachers with higher rates of mental toughness, teaching efficacy, coping resources, and satisfaction from the teaching profession are more likely to stay in the profession (Arnup & Bowles, 2016; Zach et al., 2012), while teachers who lack support, do not experience feelings of relatedness to the school, and exhibit low rates of teaching efficacy, tend leave the teaching profession (Barnes et al., 2018; Kirkpatrick & Johnson, 2014; Skaalvik & Skaalvik, 2017). Moreover, by following Boateng et al. (2018), we created and validated a new scale.

The results suggest that this TMTQ presents sufficient validity and reliability to support its use in research and in assessing perceptions among teachers.

Domain identification and item generation involved several initial steps to verbalize the scale. At this phase, beginner teachers, experienced teachers, pedagogical instructors, school principals, and researchers in sport pedagogy assisted in designing the instrument and its content. Next, content validity was checked and approved by other pedagogical instructors, experienced teachers, and school principals to verify its clarity, relevancy, and comprehensiveness (Barnett et al., 2020; Zach et al., 2012). This phase was followed by EFA that yielded construct structure that is comprised of six factors, indicating that the scale is multi-faceted, representing concepts of the self-determination theory (Ryan & Deci, 2000), with the *team* factor addressing the relatedness need, the *liveliness* factor representing intrinsic motivation, and the *adaptation* and *facing challenges and assertiveness* factors relating to the need for feelings of competence. At the other end of the continuum, negative feelings regarding competence (or lack thereof) are expressed through the *stress* and *burnout* factors.

Alternatively, these factors can be seen as the bright and dark sides of the teaching experience, with an understanding that mental toughness also relates to the ability to brighten up the dark (Papageorgiou et al., 2019), or to be sufficiency flexible in the presence of dilemmas, obstacles, and challenging situations to be able to overcome these difficulties in a nurturing and positive manner, rather than in a discouraging and frustrating one (Hollingsworth, 2019).

Finally, the TMTQ instrument was correlated with the similar, previously validated Self-Efficacy Questionnaire for PE Teaching (Zach et al., 2012) as a means for verifying its convergent validity. The results justify the uniqueness of the new instrument. Lastly, discriminant validity was established, as experienced teachers reported higher levels of mental toughness compared to novice teachers, demonstrating the validity of the new instrument.

Practical Implications

Two main goals can be achieved with this tool. First, it maps the difficulties of beginning teachers while offering them relevant

guidance and support that are suited to their specific professional needs. In this way, it will also be possible to develop unique individual and/or group intervention programs for beginning teachers. Such programs should be related not only to content knowledge and pedagogical content knowledge acquired during teacher preparation, but primarily to the challenging school reality manifested in relationships with peers, parents, management, and students, as well as to working conditions that require mental flexibility and thinking outside the box. Second, the dimensions of the tool can be utilized to update teacher training programs, ensuring that the actual needs of beginning teachers are also addressed.

References

Addimando, L. (2019). The effect of positive working conditions on work engagement and teaching classroom practices: A large cross-sectional study in Switzerland. *Frontiers in Psychology, 10*, 2129. https://doi.org/10.3389/fpsyg.2019.02129

Arnup, J., & Bowles, T. (2016). Should I stay or should I go? Resilience as a protective factor for teachers' intention to leave the teaching profession. *Australian Journal of Education, 60*(3), 229–244. https://doi.org/10.1177/0004944116667620

Ayalon, O., & Lahad, M. (2000). *Living on the border.* Nord Publishers.

Barnes, T. N., Cipriano, C., McCallops, K., Cuccuini-Harmon, C., & Rivers, S. E. (2018). Examining the relationship between perceptions of teaching self-efficacy, school support, and teacher and paraeducator burnout in a residential school setting. *Emotional and Behavioural Difficulties, 23*(3), 284–295. https://doi.org/10.1080/13632752.2018.1431983

Barnett, L. M., Mazzoli, E., Hawkins, M., Lander, N., Lubans, D. R., Caldwell, S., & Salmon, J. (2020). Development of a self-report scale to assess children's perceived physical literacy. *Physical Education and Sport Pedagogy, 25*(5), 1–26. https://doi.org/10.1080/17408989.2020.1741532

Biswas-Diener, R., Kashdan, T. B., & Minhas, G. (2011). A dynamic approach to psychological strength development and intervention. *The Journal of Positive Psychology, 6*(2), 106–118. https://doi.org/10.1080/17439760.2010.545429

Boateng, G. O., Neilands, T. B., Frongillo, E. A., Melgar-Quiñonez, H. R., & Young, S. L. (2018). Best practices for developing and validating scales for health, social, and behavioral research: A

primer. *Frontiers in Public Health, 6*, 149. https://doi.org/10.3389/fpubh.2018.00149
Borman, G. D., & Dowling, N. M. (2008). Teacher attrition and retention: A meta-analytic and narrative review of the research. *Review of Educational Research, 78*(3), 367–409. https://doi.org/10.3102/0034654308321455
Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin, 56*(2), 81. https://doi.org/10.1037/h0046016
Central Bureau of Statistics. (2017). *Education and schooling statistics*. https://www.cbs.gov.il
Darling-Hammond, L. (2000). Teacher quality and student achievement: A review of state policy evidence. *Education Policy Analysis Archives, 8*(1). https://doi.org/10.14507/epaa.v8n1.2000
de Boer, H., Timmermans, A. C., & van der Werf, M. P. C. (2018). The effects of teacher expectation interventions on teachers' expectations and student achievement: Narrative review and meta-analysis. *Educational Research and Evaluation, 24*(3–5), 180–200. https://doi.org/10.1080/13803611.2018.1550837
DeVellis, R. F. (1991). *Scale development: Theory and applications.* Sage Publications.
Espinoza, J. (2015, March 31). Four in ten new teachers quit in first year, union warns. *The Telegraph*. Retrieved November 21, 2016, from https://www.telegraph.co.uk/education/educationnews/11505837/Four-in-10-new-teachers-quit-within-a-year-union-warns.html
Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*, 175–191. https://doi.org/10.3758/BF03193146
Fitzwater, J. P. J., Arthur, C. A., & Hardy, L. (2018). "The tough get tougher": Mental skills training with elite military recruits. *Sport, Exercise, and Performance Psychology, 7*(1), 93. https://doi.org/10.1037/spy0000110
Fives, H., & Buehl, M. M. (2009). Examining the factor structure of the teachers' sense of efficacy scale. *The Journal of Experimental Education, 78*(1), 118–134. https://doi.org/10.1080/00220970903224461
George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference* (4th ed.). Allyn & Bacon.

Goldhaber, D., & Theobald, R. (2021). Teacher attrition and mobility over time. *Educational Researcher, 50*(4), 217–228. https://doi.org/10.3102/0013189X211060840

Granziera, H., & Perera, H. N. (2019). Relations among teachers' self-efficacy beliefs, engagement, and work satisfaction: A social cognitive view. *Contemporary Educational Psychology, 58*, 75–84. https://doi.org/10.1016/j.cedpsych.2019.02.003

Hagermoser Sanetti, L. M., Boyle, A. M., Magrath, E., Cascio, A., & Moore, E. (2021). Intervening to decrease teacher stress: A review of current research and new directions. *Contemporary School Psychology, 25*(4), 416–425. https://doi.org/10.1007/s40688-021-00349-3

Heikkinen, H., Jokinen, H., & Tynjälä, P. (2012). Teacher education and development as lifelong and lifewide learning. In H. Heikkinen, H. Jokinen, & P. Tynjälä (Eds.), *Peer-group mentoring for teacher development* (pp. 3–30). Routledge.

Hollingsworth, B. C. (2019). *Flexibility in the brain and muscles: Examining psychological flexibility, athletic identity, and stigma within sport culture.* Murray State Theses and Dissertations.

Hong, J. Y. (2010). Pre-service and beginning teachers' professional identity and its relation to dropping out of the profession. *Teaching and Teacher Education, 26*(8), 1530–1543. https://doi.org/10.1016/j.tate.2010.06.003

Ingersoll, R. M. (2001). Teacher turnover and teacher shortages: An organizational analysis. *American Educational Research Journal, 38*(3), 499–534.

Kelchtermans, G. (2017). 'Should I stay or should I go?': Unpacking teacher attrition/retention as an educational issue. *Teachers and Teaching, 23*(8), 961–977.

Kirkpatrick, C. L., & Johnson, S. M. (2014). Ensuring the ongoing engagement of second-stage teachers. *Journal of Educational Change, 15*(3), 231–252.

Lin, Y., Mutz, J., Clough, P. J., & Papageorgiou, K. A. (2017). Mental toughness and individual differences in learning, educational and work performance, psychological well-being, and personality: A systematic review. *Frontiers in Psychology, 8*, 1345.

Madigan, D. J., & Kim, L. E. (2021). Towards an understanding of teacher attrition: A meta-analysis of burnout, job satisfaction, and teachers' intentions to quit. *Teaching and Teacher Education, 105*, 103425.

Mäkelä, K., Hirvensalo, M., & Whipp, P. (2015). Determinants of PE teachers' career intentions. *Journal of Teaching in Physical Education, 34*(4), 680–699.

McGeown, S., Putwain, D., St. Clair-Thompson, H., & Clough, P. (2017). Understanding and supporting adolescents' mental toughness in an education context. *Psychology in the Schools, 54*(2), 196–209.

Mutz, J., Clough, P., & Papageorgiou, K. A. (2017). Do individual differences in emotion regulation mediate the relationship between mental toughness and symptoms of depression? *Journal of Individual Differences.*

Nguyen, T. D., Pham, L., Springer, M. G., & Crouch, M. (2019). The factors of teacher attrition and retention: An updated and expanded meta-analysis of the literature. *Annenberg Institute at Brown University, 19*, 149.

Papageorgiou, K. A., Gianniou, F. M., Wilson, P., Moneta, G. B., Bilello, D., & Clough, P. J. (2019). The bright side of dark: Exploring the positive effect of narcissism on perceived stress through mental toughness. *Personality and Individual Differences, 139*, 116–124.

Patrick, F., Elliot, D., Hulme, M., & McPhee, A. (2010). The importance of collegiality and reciprocal learning in the professional development of beginning teachers. *Journal of Education for Teaching, 36*(3), 277–289.

Renbarger, R., & Davis, B. (2019). Mentors, self-efficacy, or professional development: Which mediate job satisfaction for new teachers? A regression examination. *Journal of Teacher Education and Educators, 8*(1), 21–34.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*, 68–78.

Schaefer, L., Long, J. S., & Clandinin, D. J. (2012). Questioning the research on early career teacher attrition and retention. *Alberta Journal of Educational Research, 58*(1), 106–121.

Skaalvik, E. M., & Skaalvik, S. (2017). Teacher stress and teacher self-efficacy: Relations and consequences. In *Educator Stress* (pp. 101–125). Springer, Cham.

Woods, A. M., & Weasmer, J. (2004). Maintaining job satisfaction: Engaging professionals as active participants. *The Clearing House, 77*(3), 118–121.

Zach, S., Harari, I., & Harari, N. (2012). Changes in teaching efficacy of pre-service teachers in physical education. *Physical Education & Sport Pedagogy, 17*(5), 447–462. https://doi.org/10.1080/17408989.2011.582491

Appendix

The Questionnaire

Item No.	Item	Not at all				To a very large extent
		1	2	3	4	5
10	I feel comfortable consulting with the school staff					
11	I feel empowered by the professional teamwork					
7	I feel strength from the positive atmosphere in the teachers' team					
13	I feel self-confident as a result of my good relationship with the school principal					
23	I enjoy going to school					
9	I am meaningful to the students					
6	I find teaching to be fresh and invigorating					
15	I aspire to develop myself professionally through school roles					
20	I have adapted myself to the reality of the school					
17	I quickly revert to routine after a crisis situation					
19	I believe in my teaching abilities					
18	I maintain self-control in difficult moments when teaching					
22	I efficient organize my workload (e.g., conduct exams, submit grades, and arrive to class in a timely manner)					
21	I exhibit flexibility for adapting to changes in the teaching process					
16	I separate between my professional life and my private one					
4	I feel stress/insecurity when my students' achievements are low					
3	I lack confidence when participating in parent-teacher meetings					
8	I lack confidence/feel stress when dealing with disciplinary issues					
5	I experience physiological changes in light of classroom situations (e.g., high blood pressure, increased heart rate, and dizziness)					
14	I cannot wait for the next school vacation					
12	I experience tiredness from dealing with students					
2	Criticism					
1	I encounter educational dilemmas (such as students' contesting their grades, social issues, violence, and students' unresponsiveness)					